Six-Month Report Instructions for Partners and Cooperative Projects

This report (generally 2-3 pages in length) is used to document progress on projects and identify any problems that might need to be resolved. Both the academic and the operational forecasting partners should be involved with completing the report. The report can be submitted in either hard copy or electronic form to Bonnie Slagel.

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NWS/AFWA/Navy Office: NCEP/HPC and NCEP/SPC

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Partners or Cooperative Project: Cooperative UCAR Award No.: S00-19128

Date: 11/28/00

SECTION 1: PROJECT OBJECTIVES AND ACCOMPLISHMENTS

1.1 *(To be completed by academic and forecaster partners)* Please summarize progress on COMET-funded work during the last six months of the project. *See attached sheets*

SECTION 2: RELATED ACCOMPLISHMENTS

2.1 *(To be completed by academic partner)* Please summarize any other work conducted by the University, which was a result of the COMET Outreach Program collaboration but was not directly funded by it (for example, presentation of seminars at NWS/AFWA/Navy office, if these were not part of the original proposal). *See attached sheets*

2.2. *(To be completed by forecaster partner)* Please summarize any other work conducted by the NWS/AFWA/Navy, which was a result of your collaboration with the university but was not directly funded by it (for example, seminars given by NWS/AFWA/Navy forecasters at the university). *See attached sheets*

SECTION 3: SUMMARY OF BENEFITS

3.1 *(To be completed by academic partner)* Please list the benefits to the University resulting from the collaboration (new understanding of forecasting problems, exposure of students to operational forecasting, access to new observing systems, changes in course offerings, use of NWS/AFWA/Navy personnel as resource, etc.). *See attached sheets*

3.2 *(To be completed by forecaster partner)* Please list the benefits to the NWS/AFWA/Navy office resulting thus far from the collaboration (promising new forecasting technique, heightened interest in research in the office, better understanding of new observing systems, potential new hires, use of university personnel as resource, etc.). Please be as specific as possible, particularly in regard to any improvements in forecasting operations resulting from this project (see examples). *See attached sheets*

SECTION 4: PRESENTATIONS AND PUBLICATIONS

4.1. *(To be completed by academic and forecaster partners)* Please provide complete citations using the AMS bibliographic format for each thesis, dissertation, publication or presentation prepared as part of this COMET Outreach project. *See attached sheets*

SECTION 5: SUMMARY OF PROBLEMS ENCOUNTERED

5.1 *(To be completed by academic partner)* Please describe problems encountered on the University side in the last six months and their resolution, if any. *See attached sheets*

5.2 *(To be completed by forecaster partner)* Please describe problems encountered on the NWS/AFWA/Navy side in the last six months and their resolution, if any. *See attached sheets*

SECTION 1: PROJECT OBJECTIVES AND ACCOMPLISHMENTS

1.1 (To be completed by academic and forecaster partners) Please summarize progress on COMET-funded work during the last six months of the project.

Since June 1, 2000, resources for the project have been devoted to: (1) creating a procedure to run the precipitation-type algorithms and distribute the numerical output to HPC and SPC forecasters, (2) developing an evaluation form for forecasters to submit, and (3) creating a website for the project. Currently six algorithms are being run and the output data are being distributed from a workstation at the HPC. The data are distributed in a format that is easy to view on HPC and SPC workstations and includes numerous plots that show the hourly output from each algorithm as well as ensemble products that show the most likely type of precipitation and a risk assessment (e.g., low, medium, and high) of each precipitation type.

Forecaster evaluation forms were created with the assistance of the SOO at the HPC and a forecaster from the SPC to provide feedback concerning the usefulness of the algorithm output, the format of the products, and the forecaster's perceived accuracy of the products. As of 2000 November 28, 66 evaluations have been submitted, with over 80% of those that evaluated the usefulness of the output stating that it had been useful, very useful, or extremely useful in creating an NWS product.

A website for this project (http://www.spc.noaa.gov/exper/ptax) has been created by a research assistant and is being hosted by the SPC. Although it is still officially under development, the current version provides forecasters with educational material about the algorithms as well as information about the COMET project. An online archive is nearly finished and will provide project researchers with easy access to data that pertains to this project. This site will also be used to post all COMET progress reports, such as this one, for all participants to view. The web-based evaluation form is also available at this site. Early forecaster comments indicate that the web-based form is the preferred method of submitting comments.

SECTION 2: RELATED ACCOMPLISHMENTS

2.1 (To be completed by academic partner) Please summarize any other work conducted by the University, which was a result of the COMET Outreach Program collaboration but was not directly funded by it (for example, presentation of seminars at NWS/AFWA/Navy office, if these were not part of the original proposal).

The main university participant presented a brief description of the project to participants in the RFC-HPC Hydromet Course 01-1 in November 2000.

2.2. (To be completed by forecaster partner) Please summarize any other work conducted by the NWS/AFWA/Navy, which was a result of your collaboration with the university but was not directly funded by it (for example, seminars given by NWS/AFWA/Navy forecasters at the university).

The NCEP investigator made a presentation on the precipitation-type algorithm ensemble approach to the NCEP-hosted SOO Workshop 14--17 November 2000 at the NOAA Science Center. The presentation was well received by the participants.

SECTION 3: SUMMARY OF BENEFITS

3.1 (To be completed by academic partner) Please list the benefits to the University resulting from the collaboration (new understanding of forecasting problems, exposure of students to operational forecasting, access to new observing systems, changes in course offerings, use of NWS/AFWA/Navy personnel as resource, etc.).

As a result of this project, the university participants have gained a greater appreciation of time and information limitations within the operational forecasting environment. This information will ultimately help the university participants develop an efficient forecasting system for use in many types of operational settings. This project has also provided the university participants with additional personnel resources at the HPC to help accomplish this research.

3.2 (To be completed by forecaster partner) Please list the benefits to the NWS/AFWA/Navy office resulting thus far from the collaboration (promising new forecasting technique, heightened interest in research in the office, better understanding of new observing systems, potential new hires, use of university personnel as resource, etc.). Please be as specific as possible, particularly in regard to any improvements in forecasting operations resulting from this project (see examples).

During the initial six months of this project, the benefits to the HPC so far are: (1) the use of a novel physically-based forecasting technique, (2) the use of university personnel as a personnel resource, (3) an improvement in forecasters' knowledge of precipitation microphysics and its relationship to forecasting precipitation types, (4) a heightened forecaster awareness of current research in forecasting techniques, (5) an extension and broadening of forecasters' knowledge of consensus (ensemble) forecasting methods.

SECTION 4: PRESENTATIONS AND PUBLICATIONS

4.1. (To be completed by academic and forecaster partners) Please provide complete citations using the AMS bibliographic format for each thesis, dissertation, publication or presentation prepared as part of this COMET Outreach project.

None.

SECTION 5: SUMMARY OF PROBLEMS ENCOUNTERED

5.1 (To be completed by academic partner) Please describe problems encountered on the University side in the last six months and their resolution, if any.

Because of an increase in the model resolution (more levels in the vertical) and the decision to extend the work to include the 06 and 18 UTC Eta model runs, a shortage of disk space for archiving data developed. As a solution, the NWS will obtain disk and tape drive hardware for staged data archiving to disk and then to tape. The equipment is on order and should be online in 4 to 6 weeks from 1 December 2000.

5.2 (To be completed by forecaster partner) Please describe problems encountered on the NWS/AFWA/Navy side in the last six months and their resolution, if any.

After implementing the procedure to run the algorithms and distribute the output, we found that one algorithm required an excessive amount of CPU time to complete. This delayed the distribution of the data so much that it could not be used by HPC and SPC forecasters to create their products in a timely manner. Currently we are testing ways of decreasing the processing time for this algorithm. In the meantime, the algorithm is still being run, but only when the atmosphere is above freezing everywhere. Since this algorithm is not used to predict other types of precipitation, it is not included in the generation of the consensus forecasts. When the processing time has been decreased sufficiently, it will be added to the consensus forecasts and used to create the risk assessment and most probable type products.